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# Evaluation and Implementation of a Discovery Tool

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**Abstract**

The buzz in campus libraries is "Discovery Tools" -- how they work and how our patrons use them. But first, a library needs to evaluate and implement the discovery product. Experiences with Pittsburg State University's implementation of Serials Solutions' Summon product are presented, along with a select bibliography of early implementer literature, as a guide to successful implementation for the small- to medium-sized library.

**What is a Discovery Tool?**

The tired, worn public access catalogs are giving way to the newest technology, the discovery tool. What sets discovery tools apart?

Discovery tools are most frequently defined by the term "web scale" due to the formidable quantity of information presented. Teets (2009) defines web-scale as "a system which is Highly Available, Reliable, Transparent, High Performance, Scalable, Accessible, Secure, Usable, and Inexpensive." In the context of discovery tools, web-scale discovery is more appropriately defined as "a link between the information user and the platform on or location at which the information resides… [providing] a single search box interface to pre-indexed metadata and/or full-text…intended to provide users with a simple, fast, and easy "Google-like" search experience; to provide librarians with increased awareness and usage of their holdings; and to provide content providers with an opportunity for increased usage, especially by inexperienced searchers, and with a distribution channel that can broaden their brand awareness" (NFAIS, 2011).

Many web-scale discovery tools are delivered through cloud computing—"the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility…over a network (typically the Internet)" (http://en.wikipedia.org)—making them easier for libraries to implement with a minimum of hardware, software and personnel requirements, thus being allegedly "less expensive." Discovery tools are usually marketed as annual renewable subscriptions, giving the library more financial flexibility by trading off local servers and administration for hosted subscription services.

Architecturally and visually, discovery tools are probably most recognizable by their use of faceted searching—the fundamental categories, descriptors, or aspects—of a cataloged item, which allows the user to easily add or remove multiple entries based on faceted criteria –thus expanding or narrowing searches in real time. In some discovery tools, the local library is able to define, weight, and/or customize wording for the facet as it relates to local material and local terminology ("thesis" versus "dissertation", as an example). Examples of facets include scope of material (peer-reviewed journals, full-text, newspaper articles, everything owned by the library, additional items beyond library licensed content); format (DVD, online, streaming, downloadable, print, electronic, microform, etc.); subject content (automatically generated by metadata from existing descriptors or subject analysis); dates, and/or ranges of dates; physical location (critical for multi-branch sites and multi-type consortia); and language of origin, among others. The end-user is able to use the facets to adjust the content, shape of container, age, and scope of the material similar to adjusting the flow of a hot and cold faucet—a little more of this, a little less of that. Numerous studies have contributed to our understanding of the effectiveness of faceted searching (Olson, 2007; Carter, 2009; Fagan, 2010).

Beyond facets, the depth of the discovery product lies in its content, the ability to combine multiple sources of metadata into a single, Google-like search box. The combination of MARC records, OAI-compliant external repositories, databases, images, multi-media, and other online sources in a single search can lead to powerful, albeit overwhelming results. The access to volumes of information, hidden for years in silos of individual databases or products with no way to simultaneously search them from a single starting point, is a boon to researchers and even the inexperienced user (Philip, 2011; Joint, 2010; Prescott & Erway, 2011; Gibson, 2008). While advanced or more traditional search interfaces are usually available as an alternate user interface, the single box and clarity of design is very much the centerpiece for end-users with limited prior exposure or experience in searching bibliographic information.

Finally, discovery tools distance themselves from federated searching tools (Lederman, n.d.) by generally using pre-indexed metadata and content, much of it full-text, which provides significantly larger result sets in "internet time", using the pre-indexing to achieve rapid results with little delay time. As the story goes, discovery tools are for finding, not just for searching, and certainly not for watching a complicated Boolean query grind under an hourglass (Denholm et al., 2008; Breeding 2011).



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**Evaluation**

Extensive documentation of early implementations (Dartmouth, 2009; Oregon State, 2009; Vaughan, 2011; Way, 2010) can be used effectively by a smaller library, keeping a few points in mind. Larger campuses are well-served by numerous committees and implementation teams which are able to thoroughly document their implementations. Smaller libraries can benefit from this research and use the results to guide their own evaluations. Smaller libraries, in some ways, are more nimble in their ability to implement discovery tools in a short timeframe with only one or two staff involved, so documented studies should not discourage the small or medium-sized library. Many discovery tools rely on agile software development to deliver product enhancements and resolve the shortcomings of many early product releases that are noted in the published literature. Smaller libraries can use documented literature to monitor progress in improvements to the discovery tools, and can easily observe improvements and changes in the products even with literature less than a year old.

A library looking to acquire a discovery tool may desire to simply replace or front-end their online catalog with a newer, fresher interface (Luther & Kelly, 2011). In practice, the catalog and discovery tool serve different purposes for the end-user, and the discovery tool may not completely replace the online catalog.

For these reasons, a number of factors should be considered before arriving at a decision to purchase.

- Assessment of external content providers, and their ability to deliver quality metadata content to the discovery tool
- Assessment of integration in with existing integrated library systems (ILS) products and services
- Assessment of discovery tool vendors and the value-added services they provide

Begin by determining the number of content providers, such as EBSCO, Gale, ProQuest, etc. that provide citation/full text journal content. Consider also content located in image or document repositories, the many hidden silos. Determining which databases or products are *not* harvested or unable to be incorporated by the discovery tool, is the first step in determining how extensive your discovery tool implementation will be, and will yield a firm checklist by which to evaluated the vendor's coverage (University of Alberta, 2010; Yang & Wagner, 2010). If content providers do not have a relationship with discovery tool vendors, the exclusion of rogue, standalone content may result in decreased statistics for the library, inconvenience for the patron, and may force the library to re-evaluate the continuance of the rogue product. Similar issues will result if the content providers have metadata that is incomplete or inaccurate that is then passed to the discovery tool vendor. This can best be assessed by visiting with other libraries who have already implemented a given discovery tool.

Being able to use a discovery tool which is independent from any of several integrated library system (ILS) products is a plus (Fifarek, 2007). Neither the type of ILS installed, nor the electronic resource manager (ERM), or lack of ERM, should limit what discovery tool a library chooses to implement. The most critical factor for ILS integration with the discovery tool is whether the existing ILS has the ability to output MARC records to the discovery tool, and how elegant or streamlined this process may be. Determining what existing ILS MARC mapping will be sent to the discovery tool vendor is one logistical step (Safley et al., 2011). But by far, the most critical step is determining the flexibility and augmentation of MARC mapping at the discovery tool level, assuring that the incoming bibliographic database is just as discoverable as it was in the ILS. Robust mapping and streamlined output will then make the synchronization of the catalog to the discovery tool much more effective, and adds the benefit (in a multi-vendor solution) of providing a backup online catalog within the discovery tool for the full ILS bibliographic database.

A further step in the evaluation must include assessment of what additional services the discovery tool vendor provides, such as how frequently the MARC database can be reloaded/resynchronized; how often the discovery tool is updated with new functionality; notification methods for new builds or downtimes during upgrades; what forums exist for customers/developers to provide vendor feedback (is a sandbox view available to test out a pre-release?); what support tools and documentation are available from the

vendor; and what additional metadata content is available without direct licensing by the library. This last point is the bonus that separates basic discovery tools from extraordinary discovery tools. By leveraging the local image and repository content of customers using the product, and by adding open-access journals, public domain artifacts, Google Docs, etc., the promise of web-scale content increases well beyond the library's immediate awareness, due to the nature of the larger discovery communities.

**Implementation**

Implementation phases can run from 3-12 months or more, depending on the size of the library and the number of content providers (Stone, 2010). Implementation project plans should include:

- Identification and setup for database, e-book, and other content providers
- Harvesting of additional local OAI-compliant and XML-based content sources
- Harvesting and synchronization of local MARC ILS database records

The core set of content providers established in the evaluation phase should serve as the first build of the discovery data. In the case of e-book content providers, be aware that local e-book subscriptions may not be complete sets, and e-books may have to be identified at the title level rather than the set level. E-books may also be handled solely through the delivery of e-book MARC records through your online catalog if coverage is incomplete.

Identify next the OAI-compliant services that can also provide metadata for simultaneous searching in the discovery tool, such as ContentDM, DSpace or other image or document repositories. These are easily integrated into the discovery tool, usually by providing a single URL for each OAI server. Objects containing metadata should be reviewed for completeness; depending on customization of the metadata in local systems, additional mapping may be required similar to the ILS database at the discovery tool level (Allison, 2010; Luther, 2011).

Discovery tools, by design, are extraordinarily capable of searching multiple fields of data quickly, whereas existing ILS data is derived from specific, limited MARC fields indexed in one or more narrowly defined indexes. The discovery tool presents an opportunity to harvest (i.e., index) as much or as little of the MARC record as may be useful to the end user regardless of the authority file or classification, similar to a very robust general keyword index (Fabbi, 2009). Notes fields, local holdings fields, even item-level information including faculty course reserves or acquisition pricing, could conceivably be included if a library chose to harvest that information for inclusion in the discovery tool. In some cases, even the weighting and precedence of certain fields of data can be determined by the library in the discovery tool. Mapping of the ILS database to the discovery tool can be as extensive or as selective as existing indexing used in the ILS.

The ILS database is not a stagnant data file, so once the entire ILS database is uploaded, synchronization scripts need to report additions, changes, and deletions of records from the ILS database and convey these to the discovery tool, daily, if possible (Marcin & Morris, 2008). Full database reloading, once scripts are in place, should not need to occur more than twice a year. The discovery tool synchronization intervals should be flexible to accommodate the needs and work patterns of the library, including rapid additions of large sets, or only seasonal discards for weeding. Note that this synchronization step may not be needed if the ILS and discovery tool are on the same vendor platform; or, more likely, the scripts will be provided and executed automatically, if on the same vendor platform.



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**Finishing Touches**

Once installation is complete and scripts are running, a few additional tasks can take the discovery tool from just another product to a comprehensive resource, including:

- Database refresh/evaluation
- Link resolver/help updates
- Branding/mobile features
- User support and product growth

Most discovery tools will click-through automatically to the full-text or online version of the article or image, bypassing much of database provider's web site unless the metadata link is unable to connect to the database site. A systematic review of database provider branding, custom labeling, and setup is suggested after implementation of the discovery tool to provide a more uniform look and feel across databases that have been implemented, one at time, over the course of many years. A hard look at branding and consistency *across* database platforms may reveal many inconsistencies, the least of which will be to add the discovery tool URL so it can be accessed directly from a database search tool if that is the starting point for the end-user's research. Re-aligning the look and feel for a more unified interface among databases is a stylistic, but a meaningful, added bonus to end-users after installation of the discovery tool.

The link resolver is also a good place to review and modify in the wake of a discovery tool implementation, augmenting wording and error recovery steps consistent with the use of a discovery tool.

Link resolver options, as well as any user help screens on website or other finding aids, including paper guides, should be updated to include the discovery tool.

Branding through the discovery tool vendor's API to allow embedded search boxes in existing library web pages or other research subject guides, will further reinforce the use of the discovery tool as the starting place. Promotion and use of the discovery tool mobile interface goes hand in hand with branding of the discovery tool site for logo, color, etc. A starting point in evaluating accessibility for visual impairment is accessing the discovery tool through various browsers and mobile devices. This will also alert library staff of any dysfunctions that may occur as a result of these browsers or devices.

Finally, invest and participate in your discovery tool user community, as many existing and creative customers will have previously provided videos, podcasts, and other user documentation to demonstrate the discovery tool. Ample opportunities exist for library staff to participate in vendor webinars and user group wikis. Actively share your own creations and ideas with active engagement with the user group or special interest group (SIG) set up specifically for the discovery tool customers. Discovery tools not only change the way we present and locate material, but also how we grow the product with new development features and applications. It is a great time to participate in the design and development of these products, and it is an invigorating time to "discover" best practices with the discovery tool of choice.

**References**


Allison, D. (2010). Information portals: The next generation catalog. *Journal of Web Librarianship*, 4(4), 375-389.

Breeding, M. (2011). Discovering harry pottery barn. *Computers in Libraries*, 31(2), 21-23.

Carter, J. (2009). Discovery: What do you mean by that? *Information Technology and Libraries*, 28(4), 161-163.

Cloud Computing. (n.d.) In Wikipedia. Retrieved November 28, 2011, from http://en.wikipedia.org/wiki/Cloud_computing

Dartmouth College Library. (2009). An Evaluation of Serials Solutions Summon as a Discovery Service for the Dartmouth College Library. Retrieved from http://www.dartmouth.edu/~library/admin/docs/Summon_Report.pdf

Denholm, C., Kauler, L., Lavelle, J. & Sokvitne, L. (2009). Making the new OPAC seamless: Dealing with the transition from "finding" to "getting." *Library Hi Tech*, 27(1), 13-29.

Fabbi, J. L. (2009). "Discovery" focus as impetus for organizational learning. *Information Technology and Libraries,* 28, 164-170.

Fagan, J.C. (2010). Usability studies of faceted browsing: A literature review. *Information Technology and Libraries,* 29(2), 58-66.

Fifarek, A. (2007). The Birth of Catalog 2.0: Innovative Interfaces' Encore Discovery Platform. *Library Hi Tech News,* 5, 13-15.

Gibson, I., Goddard, L., & Gordon, S. (2009). One box to search them all: Implementing federated search at an academic library. *Library Hi Tech*, 27(1), 118-133.

Howard, D., & Wiebrands, C. (2011). Culture Shock: Librarians' Response to Web Scale Search. Paper presented at the 2011 ALIA Information Online Conference, Australian Library and Information Association, Sydney, N.S.W. Retrieved from http://www.information-online.com.au/sb_clients/iog/data/content_item_files/000001/paper_2011_A1.pdf

Joint, Nicholas. (2010). The one-stop-shop search engine: A transformational library technology? *Library Review,* 59(4), 240-248.

Kenney, B. (2011). Liverpool's discovery: A university library applies a new search tool to improve the user experience. *Library Journal*, 136(3), 24-27.

Lederman, S. (n.d.) Federated Search Blog. Retrieved from http://federatedsearchblog.com/

Luther, J., & Kelly, M.C. (2011). The next generation of discovery: The stage is set for a simpler search for users, but choosing a product is much more complex. *Library Journal,* 136(5), 66-72.

Marcin S., & Morris, P. (2008). OPAC: The Next Generation: Placing an Encore Front End Onto a SirsiDynix ILS. *Computers in Libraries* 28(5), 6-12.

National Federation of Advanced Information Services (NFAIS). (2011) Web Scale Information Discovery: The Opportunity, The Reality, The Future. Retrieved from http://www.nfais.org/page/353-web-scale-information-discovery-sept-30-2011

Olson, T. A. (2007). Utility of a faceted catalog for scholarly research. *Library Hi Tech*, 25(4), 550-561.

Oregon State University Discovery Services Task Force. (2009). Discovery Services Task Force *Recommendation to University Librarian.* Retrieved from http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/13817/discovery%20search%20task%20force%20recommendations%20-%20redacted%20version.pdf?sequence=1

Philip, M. (2010). *Do students want a One-stop-shop to help them navigate their way around the maze of library resources? A Usability Study looking at the beta version of Summon, the new library search engine at the University of Huddersfield*. Masters Thesis, University of Sheffield.

Popp, M., & Dallis, D. (2012*). Planning and Implementing Resource Discovery Tools in Academic Libraries.* IGI Global.

Pradhan, D. R., Trivedi, K., & Arora, J. (2011). *Searching Online Resources in New Discovery Environment: A State-of-the-Art Review.* Retrieved from http://shodhganga.inflibnet.ac.in/dxml/bitstream/handle/1944/1623/14.pdf?sequence=1

Prescott, L., & Erway, R. (2011). *Single Search: The Quest for the Holy Grail. Dublin, Ohio: OCLC Research.* Retrieved from http://www.oclc.org/research/publications/library/2011/2011-17.pdf

Safley, E., Montgomery, D., & Gardner, S. (2011). Oasis or quicksand: Implementing a catalog discovery layer to maximize access to electronic resources. *The Serials Librarian*, 60(1-4), 164-168.




https://newprairiepress.org/culsproceedings/vol2/iss1/6
DOI: 10.4148/culs.v2i0.1612

Slaven, C., Ewers, B., & Vollmerhause, K. (2011). *From "I hate it" to "it's my new best friend!" : Making heads or tails of client feedback to improve our new Quick Find discovery service.* Paper presented at the 2011 ALIA Information Online Conference, Australian Library and Information Association, Sydney, N.S.W. Retrieved from http://www.information-online.com.au/sb_clients/iog/data/content_item_files/000001/paper_2011_A3.pdf

Stone, G. (2010). Searching life, the universe and everything? The implementation of Summon at the University of Huddersfield. *Liber Quarterly: The Journal of European Research Libraries*, 20(1), 25-51.

Tay, A. (n.d.) *Articles on Discovery, Unified Resource Discovery Comparison*. Retrieved from http://sites.google.com/site/urd2comparison/articles-on-discovery

Teets, M. (2009).*What is Web-Scale?* Retrieved from: http://community.oclc.org/engineering/2009/05/what-is-web-scale.html

Thoburn, J., Coates, A., & Stone, G. (2010). *Simplifying resource discovery and access in academic libraries: implementing and evaluating Summon at Huddersfield and Northumbria Universities*. Retrieved from http://eprints.hud.ac.uk/9921/1/JISCSummonCase-StudyreportFinal.pdf

University of Alberta Libraries. (2010). *UA WorldCat/NEOS Libraries Catalogue/EBSCO Discovery Comparison Chart.* Retrieved from http://www.library.ualberta.ca/databases_help/eds/CompChartEDS.pdf

Vaughan, J. (2011). *Investigations into library web scale discovery services*. Retrieved from http://digitalcommons.library.unlv.edu/lib_articles/44/

Vaughan, J., & ALA TechSource. (2011). *Web scale discovery services*. Chicago, IL: ALA TechSource.

Way, D. (2010). *The Impact of Web-scale Discovery on the User of a Library Collection.* Scholarly Publications, Paper 9. Retrieved from http://scholarworks.gvsu.edu/library_sp/9

Yang, S. Q., & Wagner, K. (2010). Evaluating and comparing discovery tools: How close are we towards next generation catalog? *Library Hi Tech*, 28(4), 690-709.

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